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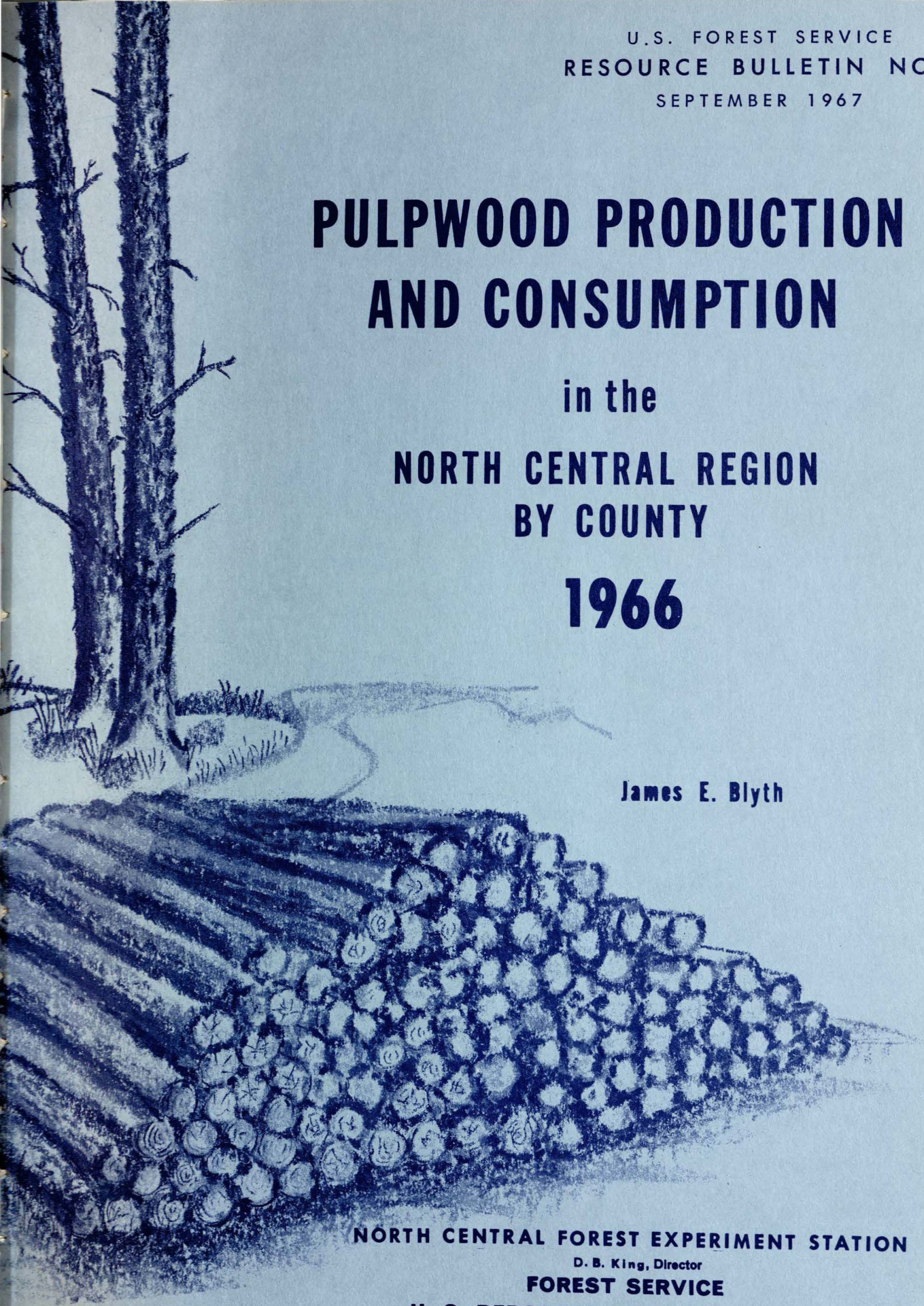
PULPWOOD PRODUCTION AND CONSUMPTION

in the

NORTH CENTRAL REGION BY COUNTY

1966



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Pulpwood Production and Consumption in the North Central Region by County, 1966

James E. Blyth

The volume of timber removed from the forests of the North Central States (Lake States and Central States) varies from year to year. Frequent measurement is required to maintain a current and meaningful picture of the relationships between timber removal, timber growth, and desirable cut. To partially meet this need the Station publishes summaries of the output of various timber products as often as data can be accumulated.

This is the eighth annual report on the pulpwood harvest in Lake States Counties and the seventh annual report on the Central States harvest. The Lake States and Central States are discussed separately because the timber types in each area are quite different and less information can be released about the Central States: More detailed data published on pulpwood production and consumption in the Central States would reveal the operations of individual mills.

The pulpmills using North Central States timber in 1966 furnished figures showing their pulpwood receipts by state and county. Their cooperation is gratefully acknowledged. Thanks are due also to Ray Pfeifer, Forest Survey Coordinator, Michigan Department of Conservation, for collecting data for the Michigan pulpmills. Robert Knutson, North Central Forest Experiment Station, coordinated the computing of the pulpmill data.

PART I. IN THE LAKE STATES

HIGHLIGHTS

Pulpwood production[1] reached a peak of 4,280,000 cords in 1966 in the Lake States, 17 percent above the previous record cut in 1964. Aspen roundwood output was 418,000 cords more than in 1965. Increased logging mechanization, a better logging season, low mill inventories, and higher pulpwood prices were major reasons for the record pulpwood harvest. However, the scarcity of woods labor continued.

Lake States pulpmills consumed 4,768,000 cords of wood in 1966, 741,000 cords more than in 1965. Demand for pulpwood in the Lake States rose because national economic activity was at a high level, the U.S. population continued to expand and find new uses for fiber products, and additions were made to regional pulping capacity.

[1] *"Production" is "the harvest of pulpwood from timber lands," whereas "consumption" (discussed in later sections) is "the utilization of pulpwood by mills."*

Note: The author is a Market Analyst on the staff of the North Central Forest Experiment Station. He is headquartered at the Station's main office in St. Paul, Minn., which is maintained in cooperation with the University of Minnesota.

Production Advanced Nearly One-fifth from 1965

In 1966, pulpwood produced in the Lake States was 644,000 cords greater than in 1965. Ninety-six percent was roundwood; the remainder was residue from local wood-using plants. Most of the residue was delivered to pulpmills as chips.

All major pulping species except spruce participated in the production gains. Besides the large increase in aspen cut (418,000 cords), pine cutting was up 110,000 cords, hemlock 44,000, and balsam fir 27,000 cords above 1965. The cut of maples, oaks, and other dense hardwoods was 79,000 cords higher.

Only 32,000 cords were exported to mills outside the Lake States, and 14,000 of these were wood residues from sawmills and veneer mills.

One-tenth more of the 1966 aspen harvest was rough wood (i.e., delivered with bark to the mills) than in 1965. The delivered mill price differential for rough and peeled aspen averaged about $10 per cord[2] in Wisconsin and about $6 per cord[3] in Minnesota. The continuing scarcity of woods labor

[2] *University of Wisconsin Extension Service, Wisconsin Forest Products Price Review, 8 pp. 1967.*

[3] *Minnesota Forest Products Marketing and Pricing Review, 8 pp. 1967.*

and the consequent high price of peeled aspen apparently was a major cause of the shift away from peeled aspen. Almost two-thirds of the Minnesota harvest and three-fifths of the Michigan harvest was rough aspen (fig. 1). Wisconsin loggers peeled 61 percent of the aspen cut in 1966 for pulpwood. A year earlier they were peeling 71 percent.

Other species were mostly delivered as rough wood to the pulpmills.

Consumption at New High

Forty-eight Lake States mills processed 4¾ million cords of pulpwood in 1966 compared with 4 million cords in 1965. Aspen, pine, and spruce accounted for 79 percent of all roundwood consumed. From 1965, pulpwood receipts rose by 429,000 cords of aspen, 95,000 cords of pine, and 84,000 cords of hardwood. All but six Lake States plants used aspen (table 1). Sawmills sold their residues to several more pulpmills in 1966 than in the previous year.

Spruce procurement by regional mills shifted towards Canada. Canadian forests supplied 65,000 more cords of spruce than in 1965, and Lake States forests supplied 45,000 fewer cords. Minnesota mills received 60,000 of these additional cords from Canada.

Wisconsin mills imported 92,000 cords of lodgepole and ponderosa pine pulpwood from Montana, South Dakota, Idaho, Wyoming, Colorado, and Nebraska.

Total pulpwood imports were 520,000 cords, 86,000 cords ahead of 1965 (table 2). Exports declined by one-fourth to 32,000 cords.

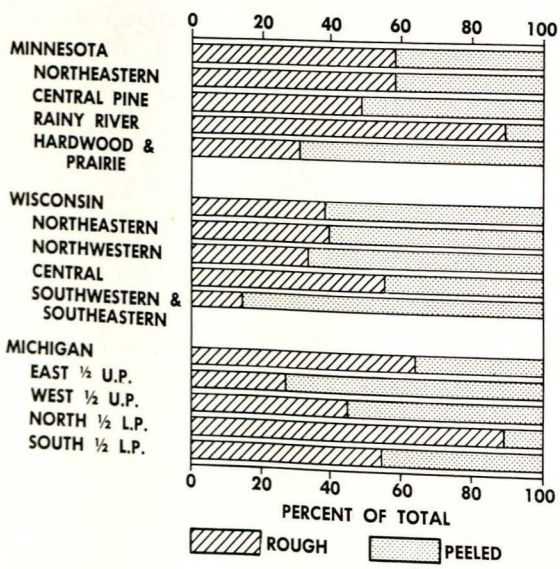


FIGURE 1. — Percent of rough and peeled aspen production of roundwood, by State and Forest Survey District, 1966.

TABLE 1. — *Number of plants using the different species of wood for pulping in 1966*

Species and kind of material	Lake States	Minn.	Wis.	Mich.
Aspen	42	9	25	8
Balsam fir	23	6	11	6
Birch	7	1	5	1
Hemlock	9	-	6	3
Pine	14	3	5	6
Spruce	27	5	16	6
Tamarack	4	2	2	-
Misc. hardwoods	16	2	8	6
Wood chips	10	2	4	4
Slabwood and other residue	5	1	3	1
Total plants	48	9	29	10

TABLE 2. — *Pulpwood exports and imports for the Lake States, 1966*
(Thousand standard cords, unpeeled)

Species	Exports	Imports	Net exports or (imports)
Aspen	-	28	(28)
Balsam fir	-	20	(20)
Pine	-	101	(101)
Spruce	10	279	(269)
Mixed hardwoods	8	1	7
Residues, softwood	7	89	(82)
Residues, hardwood	7	2	5
Total	32	520	(488)

Regional Mill Capacity Approaches 10,000 Tons Per Day

Half of the daily regional mill capacity of 9,530 tons[4] is in Wisconsin (table 3). Mechanical fiber separation is most used, but the sulfite process still accounts for one-fourth of the regional capacity.

Actual and potential publicized mill construction and expansions indicate a rise in the regional pulping capabilities of 10 percent during the next 3 years. Most of the new capacity will use the kraft (sulfate) process. At least two sulfite mills are expected to close and be replaced by kraft facilities. All three States should participate in the expansion.

Review of Pulpwood Production by States, 1966

Of the 1966 harvest, Michigan produced 37 percent, Wisconsin 36 percent, and Minnesota 27 percent.

Figures 2 and 3 show the amount of roundwood cut relative to commercial forest area by county

[4] *Excludes two mills in Wisconsin for which data are not available.*

TABLE 3. — *Active woodpulp mills in the Lake States, by location, type of pulp produced, and capacity, 1966*

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Minnesota:						
Blandin Paper Co.	Grand Rapids	200	--	--	200	--
Hennepin Paper Co.	Little Falls	65	--	--	65	--
Boise Cascade Corp.	International Falls.	755	180	125	450	--
Northwest Paper Co., The	Cloquet	400	115	285	--	--
Nu-Ply Corp.	Bemidji	75	--	--	75	--
St. Regis Paper Co.	Sartell	125	--	--	125	--
Superwood Corp.	Duluth	240	--	--	240	--
Waldorf Paper Products Co.	St. Paul	275	--	--	--	275
Wood Conversion Co.	Cloquet	350	--	--	350	--
Total	9 plants	2,485	295	410	1,505	275
Wisconsin:						
American Can Co.	Green Bay	270	155	--	115	--
American Can Co.	Rothschild	170	170	--	--	--
Badger Paper Mills, Inc.	Peshtigo	90	90	--	--	--
Combined Locks Paper Co.	Combined Locks	50	--	--	50	--
Consolidated Papers, Inc.	Appleton	155	155	--	--	--
Consolidated Papers, Inc.	Stevens Point	100	--	--	100	--
Consolidated Papers, Inc.	Wisconsin Rapids	515	215	--	300	--
St. Regis Paper Co.	Cornell	50	--	--	50	--
Fort Howard Paper Co.	Green Bay	40	--	--	40	--
Green Bay Packaging, Inc.	Green Bay	220	--	--	--	220
Kansas City Star Co.	Park Falls	115	115	--	--	--
Kimberly-Clark Corp.	Kimberly	280	130	--	150	--
Kimberly-Clark Corp.	Niagara	275	125	--	150	--
Mosinee Paper Mills Co.	Mosinee	200	--	200	--	--
Nekoosa-Edwards Paper Co.	Nekoosa	310	--	310	--	--
Nekoosa-Edwards Paper Co.	Port Edwards	200	200	--	--	--
Owens-Illinois	Tomahawk	525	--	--	--	525
Peavey Paper Mills, Inc.	Ladysmith	30	--	--	30	--
Procter & Gamble Co.	Green Bay	2/	2/	--	2/	--
Procter & Gamble Co.	Little Rapids	2/	--	--	2/	--
Scott Paper Co.	Marinette	50	50	--	--	--
Scott Paper Co.	Oconto Falls	110	110	--	--	--
St. Regis Paper Co.	Rhinelander	140	100	--	--	40
Sterling Pulp & Paper Co.	Eau Claire	175	100	--	75	--
Superior Fiber Products Co.	Superior	140	--	--	140	--
Thilmany Pulp & Paper Co.	Kaukauna	300	--	300	--	--
Tomahawk Pulp Co., Inc.	Tomahawk	50	--	--	50	--
Wausau Paper Mills Co.	Brokaw	145	145	--	--	--
Wisconsin Wood Products, Inc.	Phillips	50	--	--	50	--
Total	29 plants	4,755	1,860	810	1,300	785
Michigan:						
Abitibi Corp.	Alpena	300	--	--	300	--
Celotex Corp.	L'Anse	270	--	--	270	--
Hoerner Boxes, Inc.	Ontonagon	400	--	150	--	250
Manistique Pulp & Paper Co.	Manistique	90	--	--	90	--
Mead Corp, The	Groos	100	--	--	100	--
Menasha Corp.	Ostego	150	--	--	--	150
Packaging Corp. of America	Filer City	565	--	165	--	400
Scott Paper Co.	Detroit	170	170	--	--	--
Scott Paper Co.	Menominee	20	--	--	20	--
Warren Co., S.D.	Muskegon	225	--	225	--	--
Total	10 plants	2,290	170	540	780	800
All States	48 plants	9,530	2,325	1,760	3,585	1,860

1/ Lockwoods Directory of the Paper and Allied Industries-1967, and 1967 Directory of the Forest Products Industry.
2/ Capacity not available.

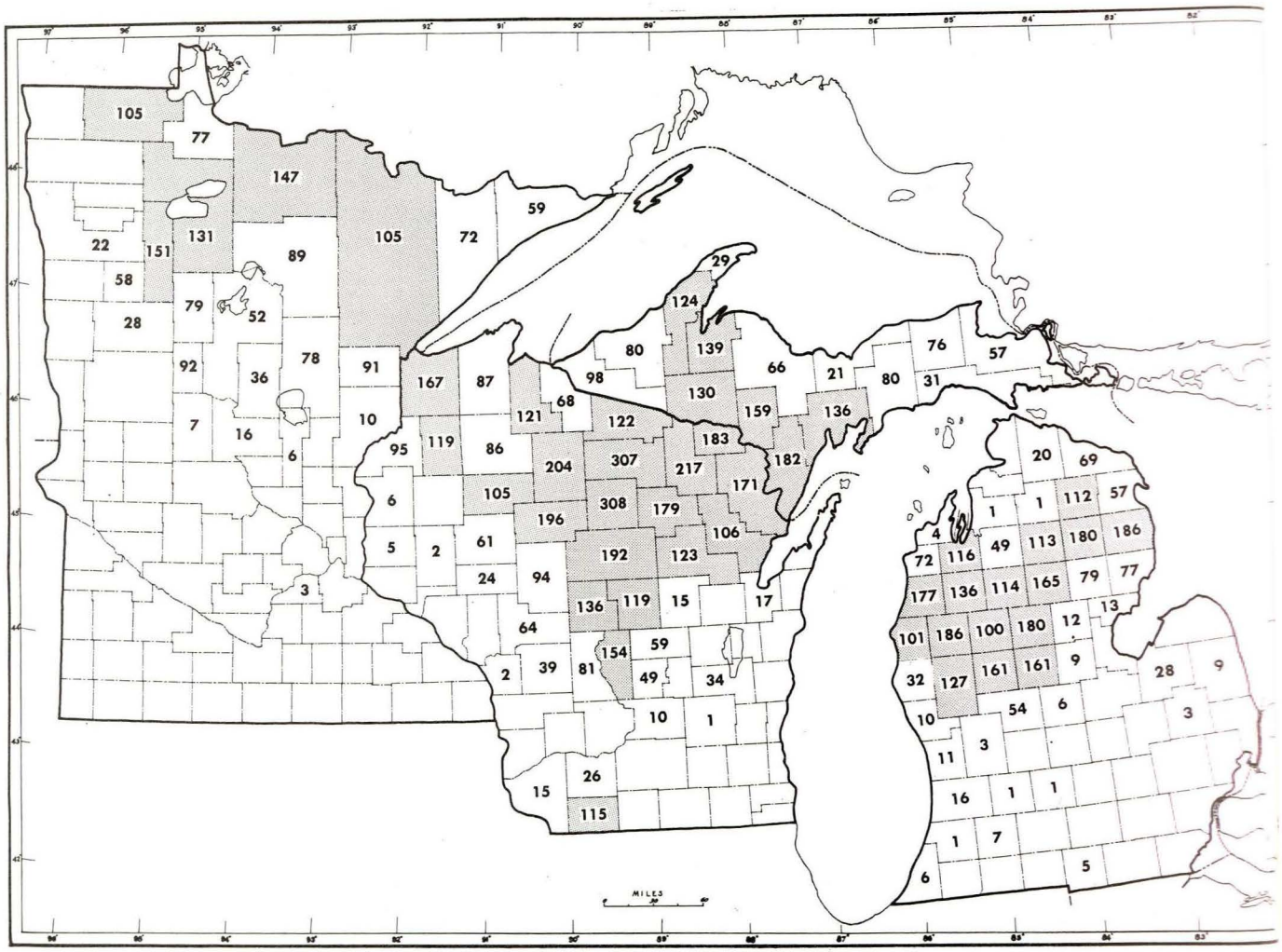


FIGURE 2. — Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in the principal pulpwood-producing counties. 1966. Cross-hatching shows counties that supplied 100 or more cords of pulpwood per 1,000 acres of stocked commercial forest land.

and relative to merchantable timber volume by Forest Survey District.

Wisconsin boosts harvest 283,000 cords. — Strong demand for pulpwood at resident mills gave impetus to the record Wisconsin cut in 1966. These mills used all but 2 percent of the 1,536,000 cords harvested. The increase in cut came primarily from northeastern and northwestern Wisconsin. Aspen represented 71 percent of the additional harvest. Hardwood production climbed 44,000 cords after declining for 2 years. Imports account for 43 percent of the pulpwood used in Wisconsin, a drop of 2 percent in the year.

For the first time, pulpwood cut in Oneida and Lincoln Counties was above 300 cords per thousand acres of stocked commercial forest land (fig. 2). Previously cutting had never approached this figure in the region. If competition for pulpwood continues to increase, more intensive forest management may be necessary to sustain these cutting rates. Oneida, Forest, and Lincoln Counties cut the most pulpwood — 147,000, 109,000 and 100,000 cords, respectively.

Michigan cut 215,000 cords above 5-year average. — Michigan loggers produced 1,570,000 cords of pulpwood, but only 57 percent was retained in the State. Wisconsin mills received 666,000 cords from Michigan, all from the Upper Peninsula.

Top-producing counties were Menominee (93,000 cords), Iron (88,000 cords), and Delta (84,000 cords). Output from Clare County jumped 122 percent to 40,000 cords.

Michigan sawmills and veneer mills supplied

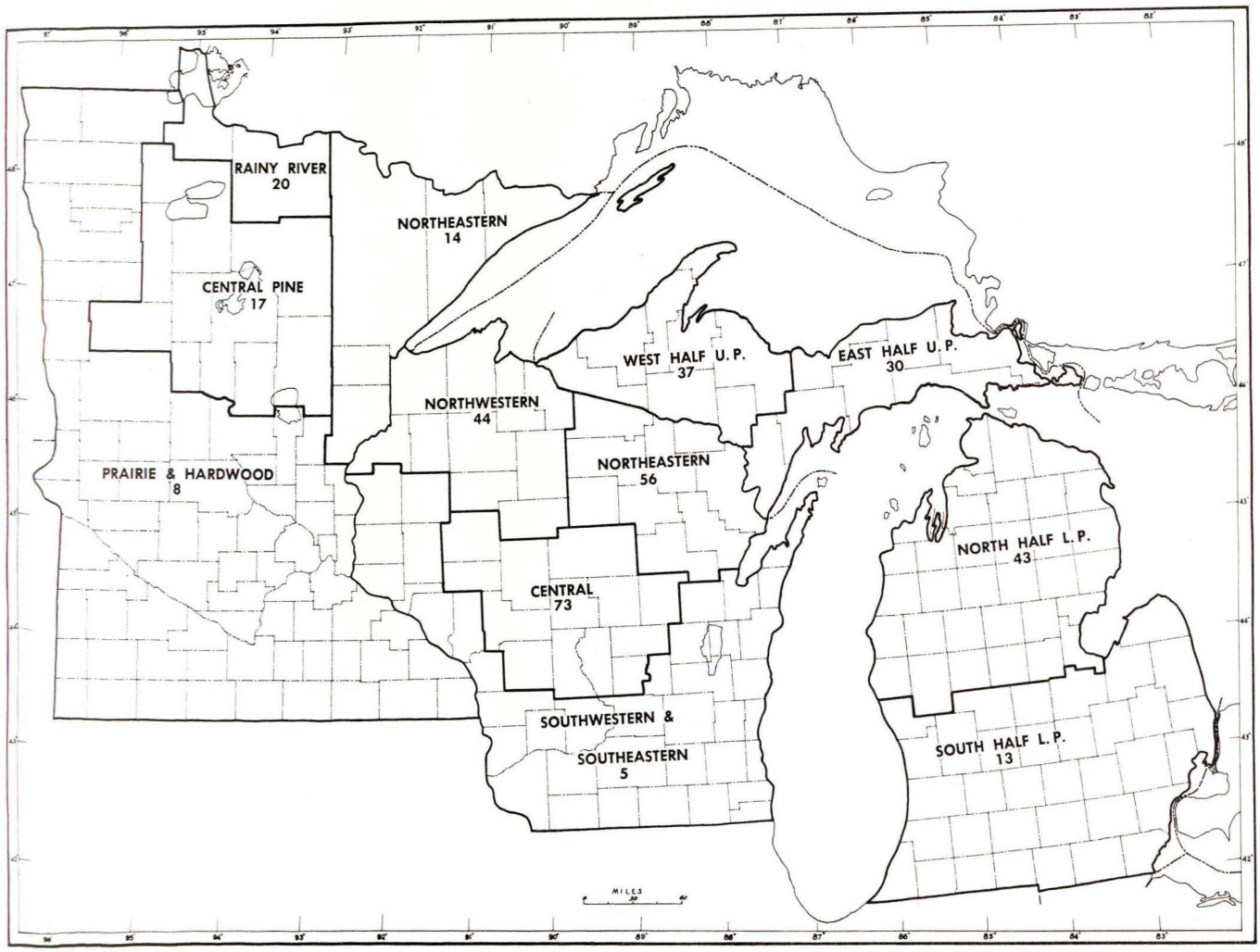


FIGURE 3. — Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species, by Forest Survey District, 1966. The heavy lines delineate the boundaries of the Forest Survey Districts in each state.

75,000 cords of residue to pulpmills, 47 percent more than in 1965.

Minnesota harvest up 15 percent. — Minnesota pulpwood output expanded to 1,174,000 cords in 1966 compared to 1,018,000 cords in 1965. Three-fourths of the 156,000-cord increase came from the Central Pine District. Resident mills used most of the additional cut; Wisconsin's share was only 34,000 cords. Large gains occurred in aspen and jack pine production, but spruce production declined 66,000 cords. On the average from July to December 1966, prices (f.o.b. cars) for rough spruce pulpwood in Minnesota were more than twice as high as rough aspen prices and about 50 percent above rough pine prices.[5] These large price differences may partially explain the shift in demand from spruce toward more intensive cutting of aspen and pine.

Counties increasing their cut significantly included St. Louis, Aitkin, Beltrami, and Itasca. St. Louis is the first county in the Lake States to have an annual harvest exceeding 300,000 cords.

[5] *See footnote 3.*

Jack pine, the most common of the three pines in the Lake States, is the second most important regional pulping species. From a timber production standpoint, jack pine is a particularly desirable pulpwood species because its rate of growth is rapid during the first 30 or 40 years, and it is more adaptable to propagation in some areas than other conifers. Jack pine is important in the manufacture of kraft papers and boards.

Pine Production

Prior to 1920, jack pine was rarely used for any products. In 1966, pine cut for pulpwood in the region was 721,000 cords or 98,000 cords above the previous record high in 1959. Nearly all of this was jack pine, but small quantities of red and white pine were mixed in. Since 1947, production has averaged 485,000 cords annually. During the later forties, the annual average cut was close to this 20-year average, then declined in the early fifties, and has risen intermittently since then. The average annual harvests for 5-year intervals beginning in 1947 have been as follows:

	Thousand cords
1947-51	433
1952-56	383
1957-61	518
1962-66	605

As the current and proposed kraft mill expansions are completed in the Lake States, native pine cutting is expected to increase accordingly.

Except for 1965, Minnesota has always led the Lake States in harvesting pine pulpwood. However, all three states are now important producers. The peak Minnesota output of 340,000 cords occurred in 1951 and since then has generally ranged from 200,000 to 250,000 cords yearly (fig. 4). A larger

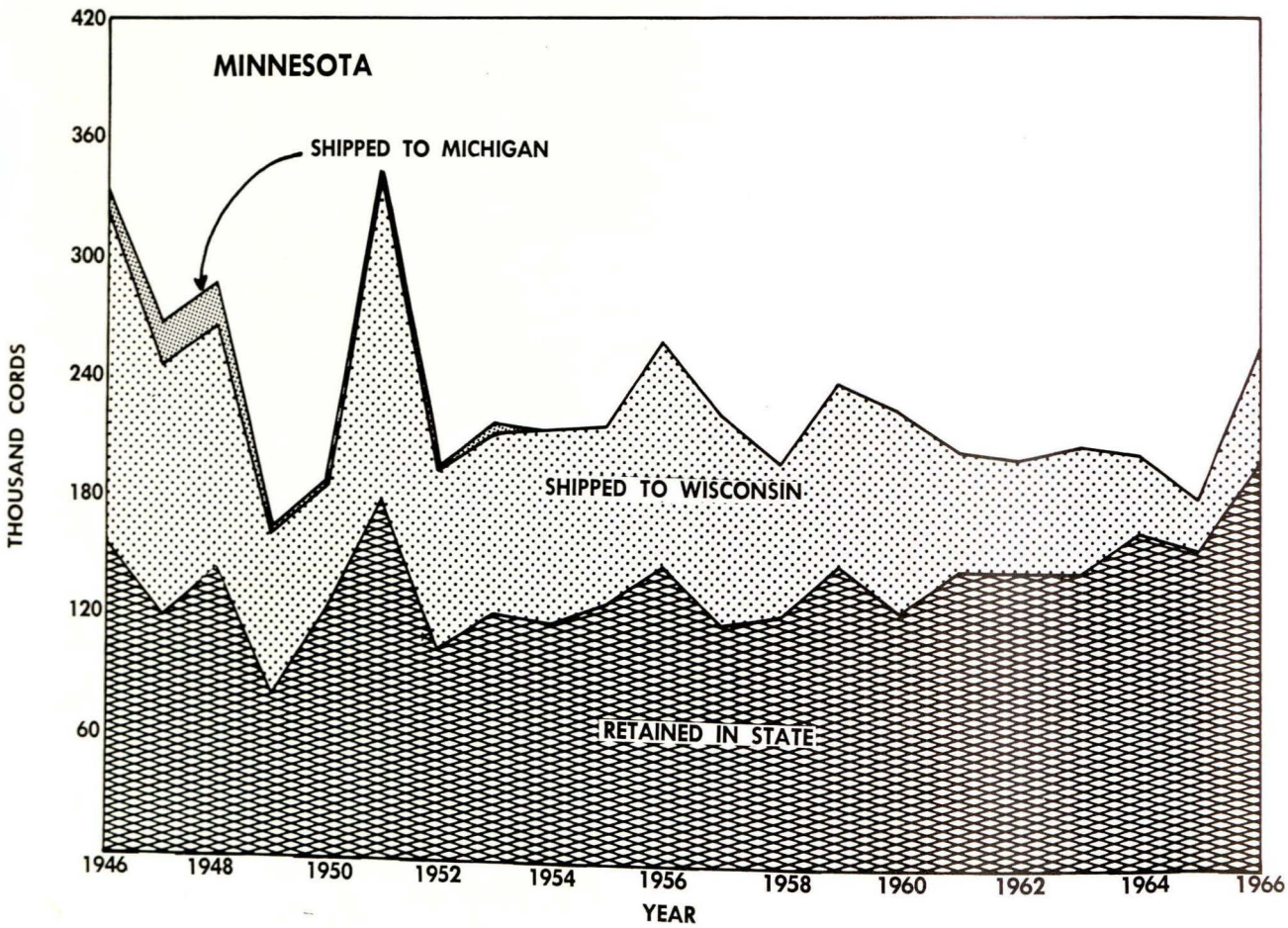


FIGURE 4. — The trend in pine pulpwood production in Minnesota and its destination by State, 1946-1966.

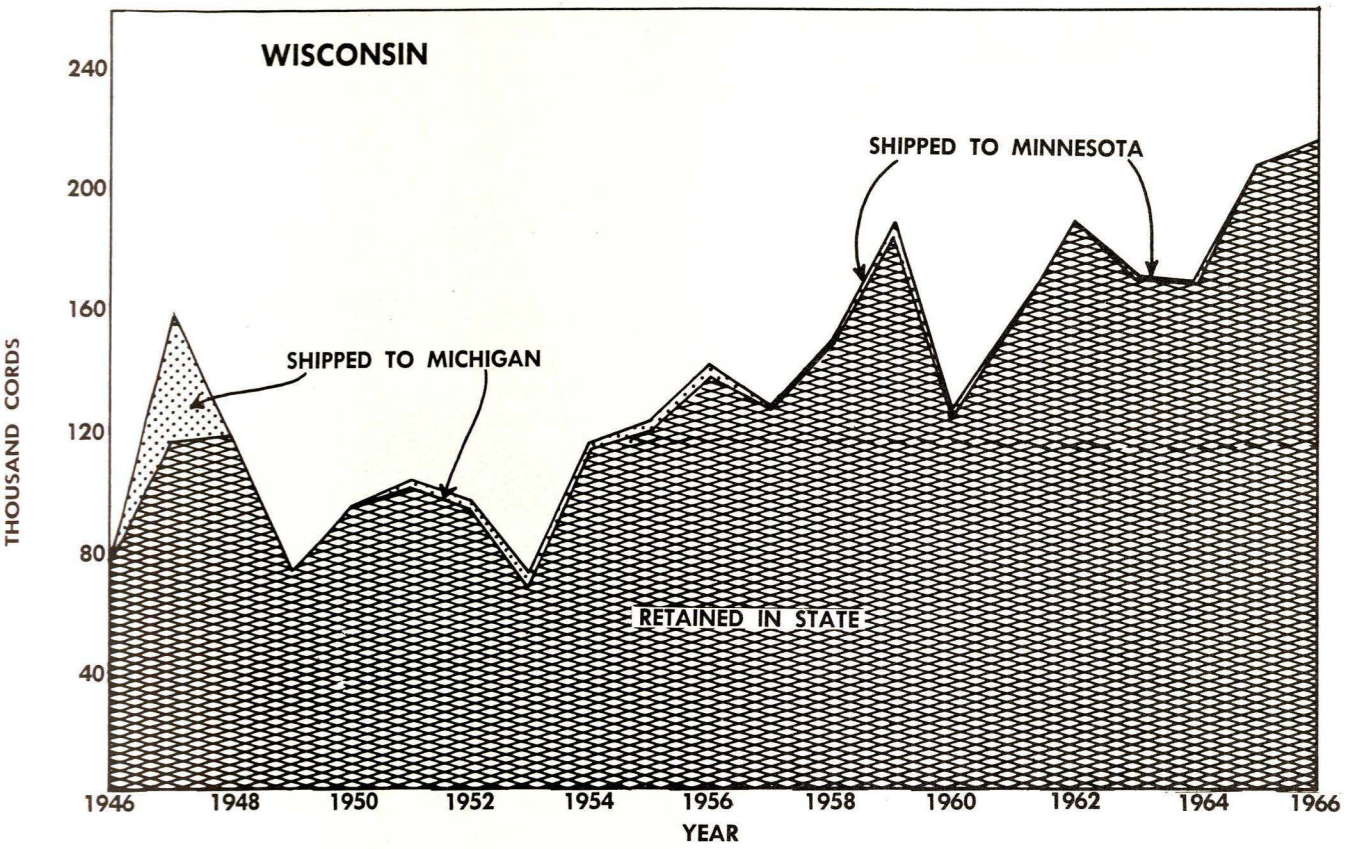


FIGURE 5. — The trend in pine pulpwood production in Wisconsin and its destination by State, 1946-1966. From 1954 on, all exports of pine pulpwood went to Minnesota whereas previously they had been shipped to Michigan.

share of the cut is being retained in Minnesota than a few years ago; Wisconsin receives the rest. Two counties, St. Louis and Lake, accounted for more than half the Minnesota pine output in 1966.

From a low of 71,000 cords in 1953, Wisconsin's annual pine pulpwood cut has been trending upward to the 215,000-cord record in 1966 (fig. 5). Virtually all of the wood is retained in Wisconsin. Northwestern Wisconsin is now the main pine pulpwood producing area; it outstripped the Central District in 1965. Important producing counties are Douglas, Burnett, Oneida, and Washburn.

Michigan's pine pulpwood harvest has rebounded sharply from a low point of 38,000 cords in 1955 to 250,000 cords in 1966 (fig. 6). The expanding demand for pine in Wisconsin mills has been a prime stimulant for greater logging in Michigan. Between 1962-66, 47 percent of pine pulpwood cut in Michigan was shipped to Wisconsin. Northern Lower Michigan cutters produce about one-half of Michigan's pine pulpwood. Marquette, Crawford, and Oscoda are top-producing counties.

Pine Consumption

Regional demand for pine pulpwood dropped precipitously from 1951 to 1954, then advanced periodically to three successive peaks (fig. 7). The 1966 peak was 823,000 cords — 326,000 cords above 1954. Consumption gains have been irregular for 21 years, each advance being no longer than 2 years.

Wisconsin's kraft pulpmills comprise 46 percent of the Lake States kraft capacity and, correspondingly, during the last 3 years Wisconsin mills have required 55 percent of all pine roundwood going to regional pulpmills. Half or more of the pine needed is imported from other States and Canada. Since 1953, pine consumption in Wisconsin has progressed irregularly upward. Five Wisconsin mills are now using pine.

During the last 20 years, Minnesota consumption of pine topped out in 1951 and has fluctuated between 150,000 and 215,000 cords yearly since then. Consumption in recent years has been steady

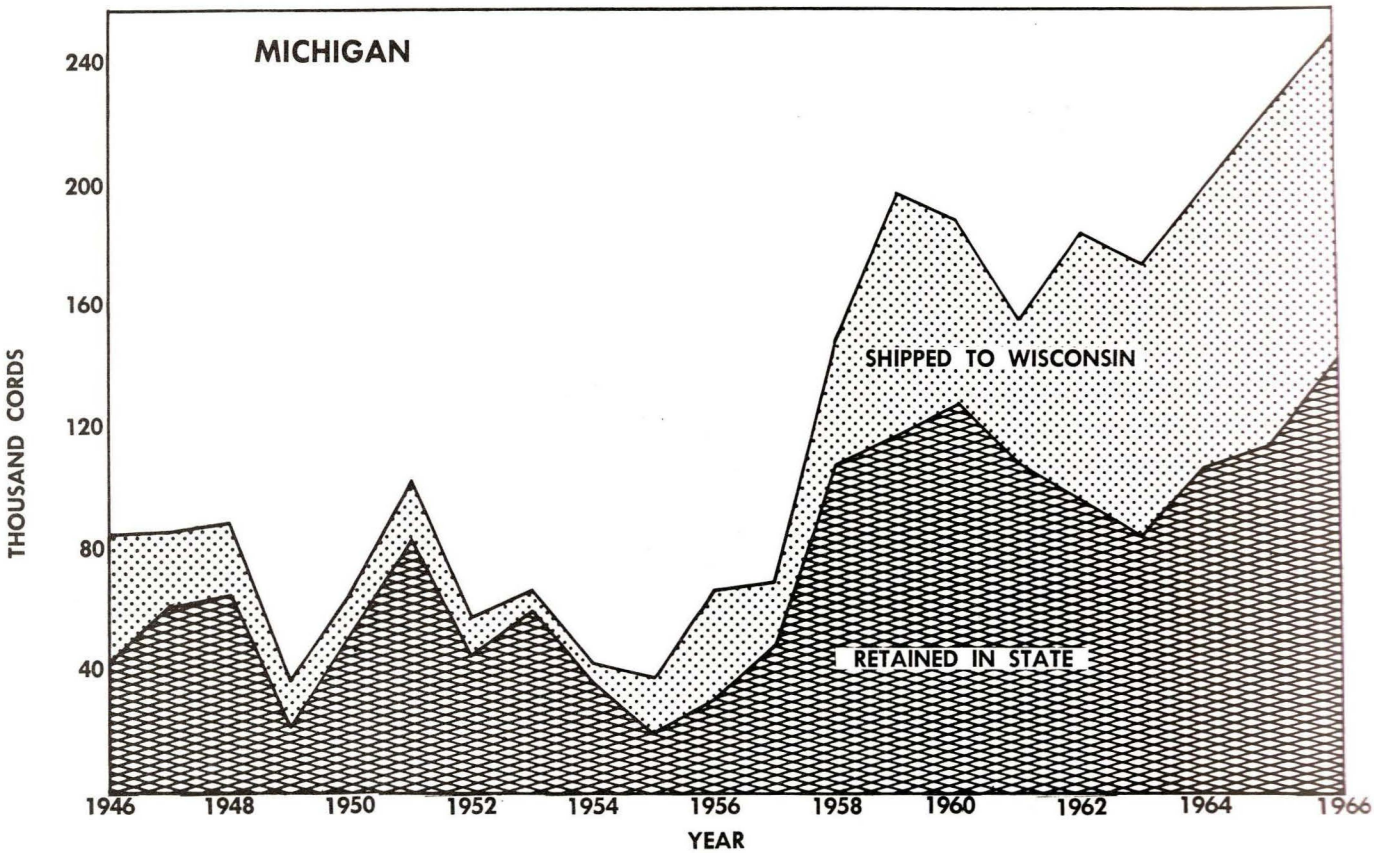


FIGURE 6. — The trend in pine pulpwood production in Michigan and its destination by State, 1946-1966.

at around 200,000 cords annually. Three mills used pine in 1966.

Six Michigan pulpmills used 143,000 cords of pine in 1966. Consumption in Michigan bottomed out in 1955 at 20,000 cords, advanced until 1960, declined for 3 years, and then advanced to the same level established 20 years ago. Thus, consumption has increased sixfold from 1955.

Lake States mills are obtaining a much larger share of their pine roundwood needs within the region than 15 years ago. As consumption of pine pulpwood has increased in the Lake States, imports of pine from Canada have decreased, and in 1966 nearly disappeared (fig. 8). Canadian imports dropped from 59,000 cords in 1965 to 10,000 cords in 1966, the lowest point in 20 years, and 150,000 cords below the high recorded in 1951. Pine pulpwood imports from Western States have zigzagged up and down for 10 years, but, overall, have shown no trend. Maturing Lake States pine plantations are supplying more of the mill requirements than formerly, a trend that will probably continue.

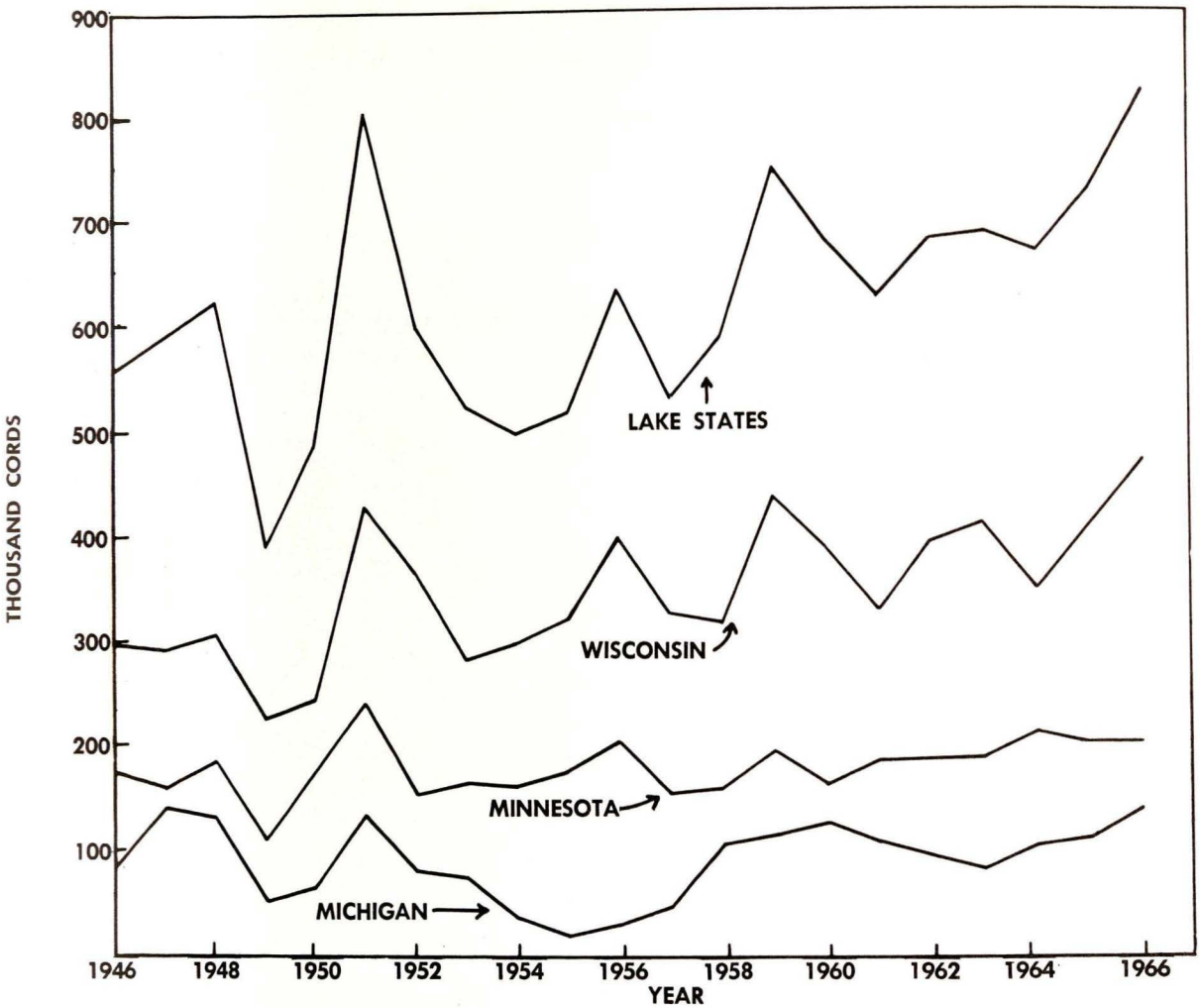


FIGURE 7. — The trend in use of pine pulpwood in the Lake States by State, 1946-1966.

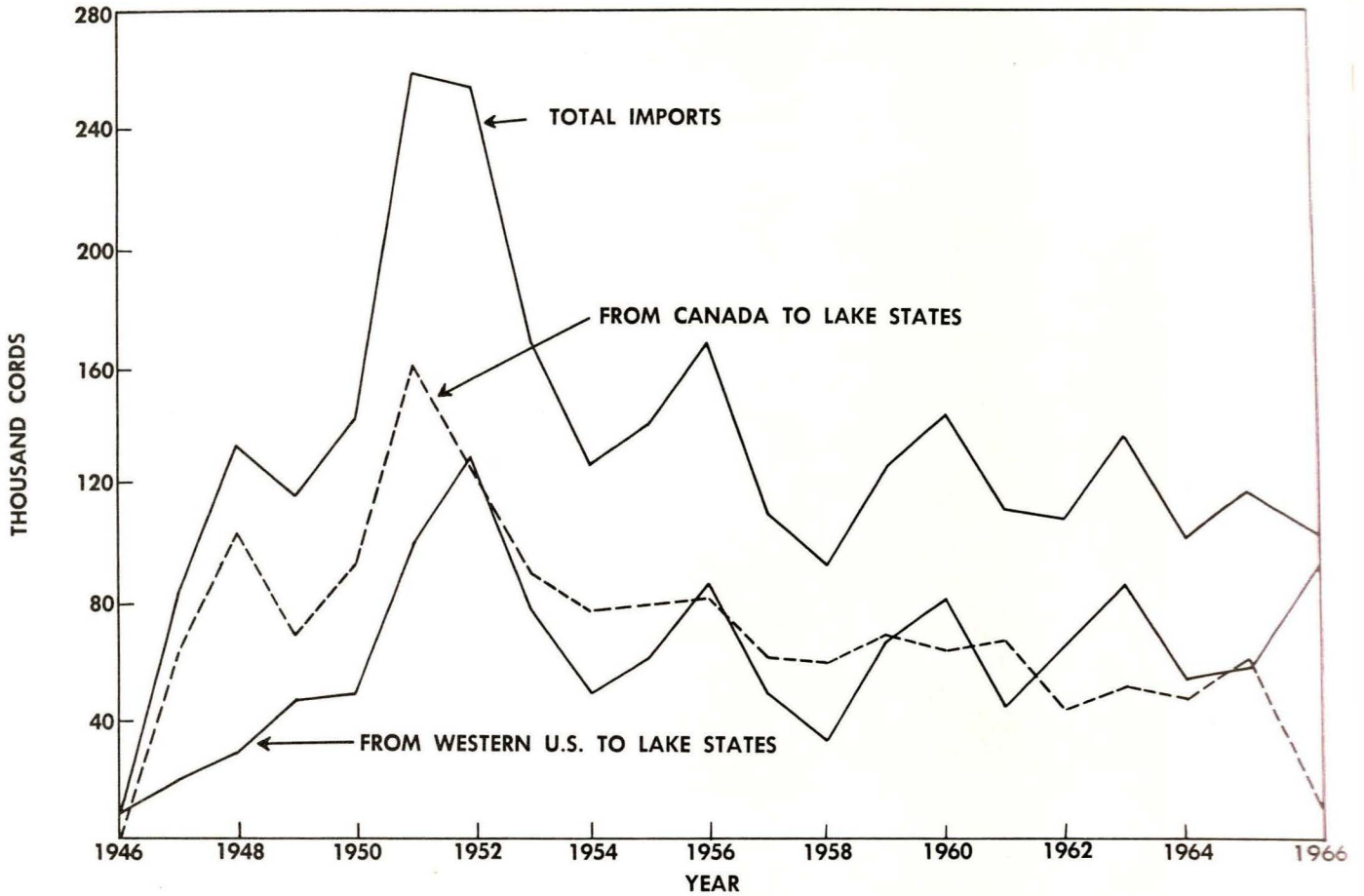
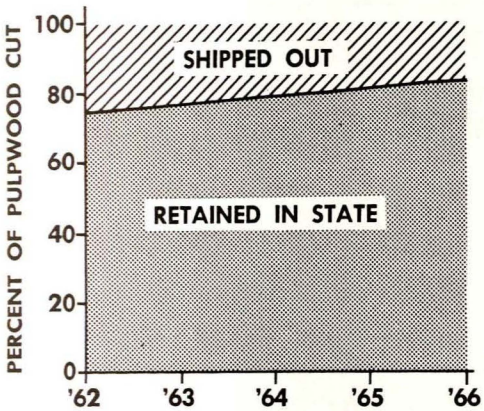


FIGURE 8. — The trend in use of imported pine pulpwood from Western United States and Canada, 1946-1966.

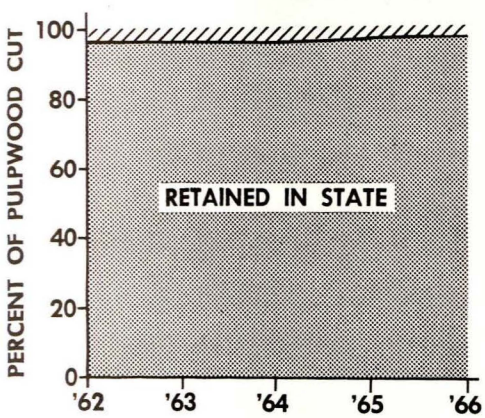
LAKE STATES PULPWOOD PRODUCTION, BY STATE OF ORIGIN AND DESTINATION, 1962 - 1966



MINNESOTA

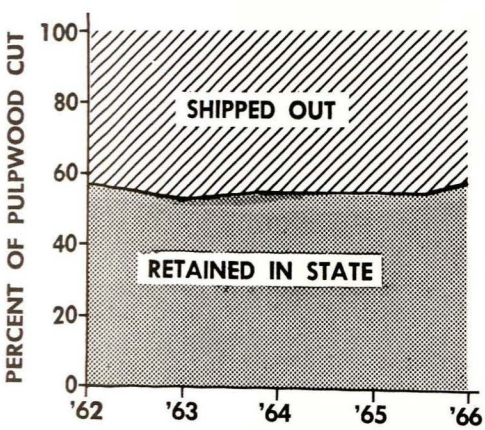
Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1962	979	753	216	1	9
1963	1,063	828	221	-	14
1964	1,062	856	193	-	13
1965	1,018	842	159	-	17
1966	1,174	970	193	*	11
5-year average	1,059	850	196	*	13

* Less than 500 cords.



WISCONSIN

Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1962	1,140	15	1,114	1	10
1963	1,302	20	1,262	2	18
1964	1,244	19	1,207	2	16
1965	1,253	8	1,225	1	19
1966	1,536	13	1,501	3	19
5-year average	1,295	15	1,262	2	16



MICHIGAN

Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1962	1,223	-	540	677	6
1963	1,297	-	633	664	-
1964	1,321	-	588	730	3
1965	1,365	-	608	750	7
1966	1,570	1	666	901	2
5-year average	1,355	*	607	745	3

* Less than 500 cords.

LAKE STATES PULPWOOD PRODUCTION, BY FOREST SURVEY DISTRICT AND DESTINATION BY STATE, 1966

MINNESOTA

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
	(Thousand standard cords, roughwood basis)				
Northeastern	449	331	117	*	1
Central Pine	449	385	64	-	*
Rainy River	237	221	6	-	10
Hardwood & Prairie	39	33	6	-	-
Total	1,174	970	193	*	11

WISCONSIN

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
	(Thousand standard cords, roughwood basis)				
Northeastern	736	-	729	*	7
Northwestern	543	4	536	3	-
Central	222	-	222	-	*
Southeastern & Southwestern	35	9	14	-	12
Total	1,536	13	1,501	3	19

MICHIGAN

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
	(Thousand standard cords, roughwood basis)				
E. ½ Up. Pen.	350	-	252	98	-
W. ½ Up. Pen.	521	1	414	106	-
N. ½ Low. Pen.	644	-	-	644	-
S. ½ Low. Pen.	55	-	-	53	2
Total	1,570	1	666	901	2

* Less than 500 cords.

LAKE STATES PULPWOOD PRODUCTION, BY SPECIES, STATE, AND FOREST SURVEY DISTRICT, 1962 - 1966

(Thousand standard cords, roughwood basis)

State and district	ASPEN Annual production					BALSAM FIR Annual production				
	1962	1963	1964	1965	1966	1962	1963	1964	1965	1966
MINNESOTA:						MINNESOTA:				
Northeastern	170	181	176	177	205	Northeastern	38	31	26	22	20
Central Pine	146	150	172	186	272	Central Pine	40	38	32	23	35
Rainy River	83	94	91	96	123	Rainy River	32	33	31	28	25
Prairie & Hardwood	7	8	12	9	12	Prairie & Hardwood	-	*	*	*	-
Total	406	433	451	468	612	Total	110	102	89	73	80
WISCONSIN:						WISCONSIN:					
Northeastern	301	321	332	341	449	Northeastern	24	33	27	25	28
Northwestern	210	219	208	220	298	Northwestern	22	27	29	24	26
Central	54	71	61	45	61	Central	*	1	1	1	1
Southeastern & Southwestern	7	2	2	2	2	Southeastern & Southwestern	*	*	*	-	-
Total	572	613	603	608	810	Total	46	61	57	50	55
MICHIGAN:						MICHIGAN:					
E. ½ Up. Pen.	96	122	112	142	156	E. ½ Up. Pen.	56	63	47	41	48
W. ½ Up. Pen.	174	203	206	207	222	W. ½ Up. Pen.	44	50	33	30	37
N. ½ Low. Pen.	305	314	332	341	388	N. ½ Low. Pen.	4	8	4	2	3
S. ½ Low. Pen.	26	23	25	14	10	S. ½ Low. Pen.	-	-	-	-	-
Total	601	662	675	704	776	Total	104	121	84	73	88
Lake States	1,579	1,708	1,729	1,780	2,198	Lake States	260	284	230	196	223

* Less than 500 cords.

(Cont'd on next page)

(Pulpwood production cont'd)

JACK PINE[1/]

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	126	136	129	101	138
Central Pine	53	50	49	56	85
Rainy River	13	14	17	12	15
Prairie & Hardwood	9	8	9	12	18
Total	201	208	204	181	256
WISCONSIN:					
Northeastern	42	45	48	57	58
Northwestern	71	53	51	76	92
Central	70	69	68	72	64
Southeastern & Southwestern	5	3	1	1	1
Total	188	170	168	206	215
MICHIGAN:					
E. ½ Up. Pen.	61	54	51	66	63
W. ½ Up. Pen.	29	36	40	47	47
N. ½ Low. Pen.	93	84	106	110	138
S. ½ Low. Pen.	1	*	1	1	2
Total	184	174	198	224	250
Lake States	573	552	570	611	721

SPRUCE

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	114	125	118	106	78
Central Pine	40	39	50	38	31
Rainy River	63	90	88	92	61
Prairie & Hardwood	*	1	1	2	2
Total	217	255	257	238	172
WISCONSIN:					
Northeastern	8	14	13	10	14
Northwestern	6	5	6	5	4
Central	1	*	*	*	*
Southeastern & Southwestern	*	*	*	-	-
Total	15	19	19	15	18
MICHIGAN:					
E. ½ Up. Pen.	41	37	33	28	31
W. ½ Up. Pen.	41	46	35	36	42
N. ½ Low. Pen.	4	5	3	1	1
S. ½ Low. Pen.	-	-	-	-	-
Total	86	88	71	65	74
Lake States	318	362	347	318	264

1/ Includes small quantity of red and white pine.

* Less than 500 cords.

(Cont'd on next page)

(Pulpwood production cont'd)

BIRCH

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	*	*	-	-	-
Central Pine	2	*	*	*	1
Rainy River	-	*	-	-	-
Prairie & Hardwood	-	*	-	-	-
Total	2	*	*	*	1
WISCONSIN:					
Northeastern	4	8	8	5	9
Northwestern	31	36	28	17	26
Central	6	6	5	2	4
Southeastern & Southwestern	-	*	*	*	-
Total	41	50	41	24	39
MICHIGAN:					
E. ½ Up. Pen.	5	11	14	5	3
W. ½ Up. Pen.	3	4	6	1	2
N. ½ Low. Pen.	13	8	18	26	8
S. ½ Low. Pen.	-	-	-	-	-
Total	21	23	38	32	13
Lake States	64	73	79	56	53

HEMLOCK

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	-	-	-	-	-
Central Pine	-	-	-	-	-
Rainy River	-	-	-	-	-
Prairie & Hardwood	-	-	-	-	-
Total	-	-	-	-	-
WISCONSIN:					
Northeastern	21	25	27	37	48
Northwestern	18	24	22	21	18
Central	3	3	3	2	3
Southeastern & Southwestern	*	*	-	-	-
Total	42	52	52	60	69
MICHIGAN:					
E. ½ Up. Pen.	3	6	10	9	21
W. ½ Up. Pen.	54	56	49	55	78
N. ½ Low. Pen.	-	-	-	-	-
S. ½ Low. Pen.	-	*	-	-	-
Total	57	62	59	64	99
Lake States	99	114	111	124	168

* Less than 500 cords.

(Cont'd on next page)

(Pulpwood production cont'd)

TAMARACK

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	6	9	7	5	1
Central Pine	3	4	5	6	6
Rainy River	-	-	-	-	*
Prairie & Hardwood	-	*	*	1	*
Total	9	13	12	12	7
WISCONSIN:					
Northeastern	2	1	1	1	1
Northwestern	4	5	3	3	2
Central	*	*	*	-	*
Southeastern & Southwestern	*	*	-	*	-
Total	6	6	4	4	3
MICHIGAN:					
E. ½ Up. Pen.	3	1	2	2	1
W. ½ Up. Pen.	1	2	1	1	*
N. ½ Low. Pen.	-	-	-	*	-
S. ½ Low. Pen.	-	-	-	-	-
Total	4	3	3	3	1
Lake States	19	22	19	19	11

MISC. HARDWOODS

State and district	Annual production				
	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)				
MINNESOTA:					
Northeastern	4	4	3	4	4
Central Pine	21	35	29	24	13
Rainy River	9	9	9	10	13
Prairie & Hardwood	*	3	3	3	1
Total	34	51	44	41	31
WISCONSIN:					
Northeastern	46	50	44	56	80
Northwestern	67	100	93	56	70
Central	69	74	75	77	84
Southeastern & Southwestern	6	9	12	9	8
Total	188	233	224	198	242
MICHIGAN:					
E. ½ Up. Pen.	13	2	7	8	16
W. ½ Up. Pen.	58	54	60	63	70
N. ½ Low. Pen.	67	70	76	75	103
S. ½ Low. Pen.	6	5	3	3	5
Total	144	131	146	149	194
Lake States	366	415	414	388	467

* Less than 500 cords.

(Cont'd on next page)

(Pulpwood production cont'd)

State and district	RESIDUE & CHIPS[1/] Annual production					ALL SPECIES[2/] Annual production				
	1962	1963	1964	1965	1966	1962	1963	1964	1965	1966
	(Thousand standard cords, roughwood basis)									
MINNESOTA:						MINNESOTA:				
Northeastern	-	-	-	1	3	Northeastern	458	486	459	416	449
Central Pine	-	-	2	2	6	Central Pine	305	316	339	335	449
Rainy River	-	-	-	-	-	Rainy River	200	240	236	238	237
Prairie & Hardwood	*	1	3	2	6	Prairie & Hardwood	16	21	28	29	39
Total	*	1	5	5	15	Total	979	1,063	1,062	1,018	1,174
WISCONSIN:						WISCONSIN:					
Northeastern	18	55	43	51	49	Northeastern	466	552	543	583	736
Northwestern	14	19	15	8	7	Northwestern	443	488	455	430	543
Central	8	19	12	6	5	Central	211	243	225	205	222
Southeastern & Southwestern	2	5	6	23	24	Southeastern & Southwestern	20	19	21	35	35
Total	42	98	76	88	85	Total	1,140	1,302	1,244	1,253	1,536
MICHIGAN:						MICHIGAN:					
E. ½ Up. Pen.	*	8	6	5	11	E. ½ Up. Pen.	278	304	282	306	350
W. ½ Up. Pen.	22	25	38	26	23	W. ½ Up. Pen.	426	476	468	466	521
N. ½ Low. Pen.	-	-	-	-	3	N. ½ Low. Pen.	486	489	539	555	644
S. ½ Low. Pen.	-	-	3	20	38	S. ½ Low. Pen.	33	28	32	38	55
Total	22	33	47	51	75	Total	1,223	1,297	1,321	1,365	1,570
Lake States	64	132	128	144	175	Lake States	3,342	3,662	3,627	3,636	4,280

1/ Not reported by district. Prorated on basis of most recent lumber output figures.

2/ Including residues and chips.

* Less than 500 cords.

LAKE STATES PULPWOOD PRODUCTION BY COUNTY AND SPECIES, 1966

WISCONSIN

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
	(Thousand standard cords, roughwood basis)									
NORTHEASTERN:										
Florence	45	38	1	*	3	1	1	-	1	
Forest	109	74	9	*	13	2	3	*	8	
Langlade	62	41	1	1	1	3	1	*	14	
Lincoln	100	63	3	2	3	4	1	*	24	
Marinette	92	61	4	-	5	13	4	*	5	
Oconto	39	33	1	-	1	2	*	-	2	
Oneida[3]	147	94	7	3	2	20	3	1	17	
Shawano[3]	44	20	1	*	17	1	*	*	5	
Vilas	49	25	1	3	3	12	1	*	4	
Total	736	449	28	9	48	58	14	1	80	49
NORTHWESTERN:										
Ashland	59	39	9	2	3	1	1	*	4	
Bayfield	63	40	2	5	1	13	*	-	2	
Burnett	27	5	-	*	-	22	*	*	*	
Douglas	85	57	1	*	*	26	1	*	*	
Iron	25	16	3	1	1	2	*	-	2	
Price	98	53	6	10	3	2	1	1	22	
Rusk	32	14	*	1	1	-	*	*	16	
Sawyer	49	22	3	6	3	6	*	*	9	
Taylor	59	34	2	1	6	*	*	1	15	
Washburn	39	18	*	*	*	20	1	*	*	
Total	543	298	26	26	18	92	4	2	70	7
CENTRAL:										
Adams	31	2	-	-	-	15	-	-	14	
Chippewa	12	11	*	-	*	1	-	-	*	
Clark	24	11	*	*	*	1	-	-	12	
Eau Claire	3	1	-	-	*	2	-	-	-	
Jackson	19	1	-	-	-	15	-	*	3	
Juneau	18	4	-	-	-	11	-	-	3	
Marathon	57	22	1	4	3	1	*	-	26	
Marquette	3	*	-	-	*	*	-	-	3	
Monroe	9	*	-	-	-	8	-	*	1	
Portage	14	2	*	*	*	3	*	-	9	
Waupaca	2	1	*	*	*	*	-	-	1	
Waushara	5	*	*	-	*	3	-	-	2	
Wood	20	6	*	*	*	4	-	-	10	
Total	222	61	1	4	3	64	*	*	84	5

WISCONSIN (cont'd)

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
					(Thousand standard cords, roughwood basis)					
SOUTHWESTERN:										
Barron	*	*	-	-	-	-	-	-	-	
Dunn	*	*	-	-	-	*	-	-	-	
Grant	3	-	-	-	-	-	-	-	3	
Iowa	2	-	-	-	-	-	-	-	2	
La Crosse	*	-	-	-	-	*	-	-	-	
La Fayette	2	-	-	-	-	-	-	-	2	
Polk	2	1	-	-	-	1	*	*	*	
Richland	*	-	-	-	-	*	-	-	-	
Sauk	*	-	-	-	-	*	-	-	-	
St. Croix	*	*	-	-	-	-	-	-	-	
Trempealeau	*	-	-	-	-	*	-	-	-	
Total	30	1	-	-	-	1	-	-	7	21
SOUTHEASTERN:										
Brown	*	*	-	-	-	*	-	-	*	
Columbia	1	*	-	-	-	*	-	-	1	
Dodge	*	-	-	-	-	-	-	-	*	
Fond du Lac	1	1	-	-	-	-	-	-	-	
Total	5	1	-	-	-	*	-	-	1	3
State total	1,536	810	55	39	69	215	18	3	242	85

1/ Includes only those counties that supplied pulpwood in 1966.

2/ County figures are not available.

3/ Includes Menominee County.

* Less than 500 cords.

MICHIGAN

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
	(Thousand standard cords, roughwood basis)									
E. ½ UP. PEN.										
Alger	11	2	1	*	2	5	1	-	*	
Chippewa	43	14	3	*	1	19	5	-	1	
Delta	84	39	17	2	5	9	7	*	5	
Luce	40	11	4	*	8	11	4	-	2	
Mackinac	17	9	2	*	*	3	2	-	1	
Menominee	93	65	10	1	1	6	6	1	3	
Schoolcraft	51	16	11	*	4	10	6	*	4	
Total	350	156	48	3	21	63	31	1	16	11
W. ½ UP. PEN.										
Baraga	74	29	4	-	17	2	8	*	14	
Dickinson	71	49	5	*	2	8	5	*	2	
Gogebic	62	24	5	*	24	*	1	-	8	
Houghton	68	15	4	*	19	2	6	*	22	
Iron	88	54	5	1	5	3	9	*	11	
Keweenaw	6	*	4	-	-	-	2	-	-	
Marquette	72	21	9	1	1	31	9	*	*	
Ontonagon	57	30	1	*	10	1	2	*	13	
Total	521	222	37	2	78	47	42	*	70	23
N. ½ LOW.PEN.										
Alcona	59	47	*	3	-	3	*	-	6	
Alpena	12	8	1	1	-	*	1	-	1	
Antrim	*	*	-	-	-	*	-	-	-	
Arenac	1	1	-	-	-	-	-	-	*	
Bay	*	-	-	-	-	-	-	-	*	
Benzie	9	7	-	-	-	*	-	-	2	
Cheboygan	7	5	*	*	-	2	*	-	*	
Clare	40	37	-	-	-	*	-	-	3	
Crawford	33	5	-	-	-	26	-	-	2	
Gladwin	2	2	-	-	-	-	-	-	*	
Grand Traverse	18	11	-	-	-	5	-	-	2	
Iosco	18	4	*	*	-	14	-	-	*	
Isabella	15	15	-	-	-	*	-	-	*	
Kalkaska	13	7	*	-	-	6	*	-	*	
Lake	54	16	-	-	-	14	-	-	24	
Leelanau	*	*	-	-	-	*	-	-	*	
Manistee	38	11	-	-	-	3	-	-	24	
Mason	16	9	-	-	-	2	-	-	5	
Mecosta	23	19	-	-	-	*	-	-	4	
Midland	1	1	-	-	-	-	-	-	*	
Missaukee	25	19	-	-	-	3	-	-	3	
Montmorency	32	20	1	1	-	6	*	-	4	
Newaygo	38	27	-	-	-	1	-	-	10	
Oceana	5	3	-	-	-	1	-	-	1	
Ogemaw	19	11	-	*	-	8	-	-	*	
Osceola	17	14	-	-	-	-	-	-	3	
Oscoda	54	26	*	1	-	26	-	-	1	
Otsego	*	*	-	*	-	-	-	-	-	
Presque Isle	19	13	1	2	-	1	*	-	2	
Roscommon	44	28	*	-	-	13	-	-	3	
Wexford	29	22	-	-	-	4	-	-	3	
Total	644	388	3	8	-	138	1	-	103	3

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
	(Thousand standard cords, roughwood basis)									
S. ½ LOW. PEN.										
Allegan	2	1	-	-	-	*	-	-	1	
Barry	*	-	-	-	-	-	-	-	*	
Berrien	*	*	-	-	-	-	-	-	*	
Eaton	*	*	-	-	-	-	-	-	*	
Gratiot	*	*	-	-	-	-	-	-	*	
Hillsdale	*	*	-	-	-	-	-	-	*	
Ionia	*	*	-	-	-	-	-	-	*	
Kalamazoo	1	*	-	-	-	*	-	-	1	
Kent	*	*	-	-	-	*	-	-	*	
Lapeer	*	*	-	-	-	-	-	-	-	
Montcalm	7	5	-	-	-	*	-	-	2	
Muskegon	2	1	-	-	-	*	-	-	1	
Ottawa	1	*	-	-	-	1	-	-	*	
St. Joseph	*	*	-	-	-	-	-	-	-	
Sanilac	1	1	-	-	-	-	-	-	-	
Tuscola	3	2	-	-	-	1	-	-	*	
Van Buren	*	*	-	-	-	-	-	-	*	
Total	55	10	-	-	-	2	-	-	5	38
State total	1,570	776	88	13	99	250	74	1	194	75

1/ Includes only those counties that supplied pulpwood in 1966.

2/ County figures are not available.

* Less than 500 cords.

MINNESOTA

District and county[1]	All species	Aspen	Balsam	Birch	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
	(Thousand standard cords, roughwood basis)								
NORTHEASTERN:									
Carlton	28	24	1	-	2	1	*	*	
Cook	38	1	1	-	1	35	-	-	
Lake	73	16	2	-	46	9	-	-	
Pine	4	2	*	-	1	*	-	1	
St. Louis	303	162	16	-	88	33	1	3	
Total	449	205	20	-	138	78	1	4	3
CENTRAL PINE:									
Aitkin	54	43	2	-	2	3	1	3	
Becker	10	10	*	-	*	-	*	-	
Beltrami	107	66	11	*	20	5	1	4	
Cass	48	27	3	1	14	1	1	1	
Clearwater	49	33	1	*	9	2	*	4	
Crow Wing	15	6	*	-	9	*	-	-	
Hubbard	32	17	1	-	13	*	1	-	
Itasca	117	64	17	-	13	20	2	1	
Wadena	11	6	-	-	5	-	-	-	
Total	449	272	35	1	85	31	6	13	6
RAINY RIVER:									
Koochiching	206	118	24	-	8	43	*	13	
Lake of the Woods	31	5	1	-	7	18	-	*	
Total	237	123	25	-	15	61	*	13	-
HARDWOOD:									
Mille Lacs	*	*	-	-	*	*	-	*	
Morrison	3	3	-	-	*	-	-	-	
Scott	*	-	-	-	*	-	-	-	
Todd	1	-	-	-	1	-	-	-	
Total	10	3	-	-	1	*	-	*	6
PRAIRIE:									
Mahnomen	7	5	-	-	1	*	*	1	
Polk	2	1	-	-	1	*	*	-	
Roseau	20	3	-	-	15	2	*	-	
Total	29	9	-	-	17	2	*	1	-
State total	1,174	612	80	1	256	172	7	31	15

1/ Includes only those counties that supplied pulpwood in 1966.

2/ County figures are not available.

* Less than 500 cords.

PART II. IN THE CENTRAL STATES

HIGHLIGHTS

Pulpwood production in the Central States in 1966 was 276,000 cords, one-fifth more than in 1965. Nearly all of this wood was retained in the region. All Central States except Missouri shared in the gain.

Fourteen Central States pulpmills processed 300,700 cords of pulpwood in 1966, an increase of 17 percent from 1965. Again, a strong national economy, coupled with the expanding U.S. population (using more paper products per capita than in 1965) was the primary reason for the increased consumption of pulpwood.

By 1970, the region could become a large exporter of pulpwood to new mills proposed for Kentucky.

Roundwood Harvest Rises 16 Percent

After declining 42,000 cords in 1965, the pulpwood cut of roundwood increased 34,000 cords in 1966 to 237,600 cords. Most of the increased harvest was in Illinois and Indiana as shown in the 5-year summary below.

	In thousand cords				
State	*1962*	*1963*	*1964*	*1965*	*1966*
Illinois	120	102	105	77	97
Indiana	87	79	85	82	94
Iowa	28	20	33	25	27
Missouri	21	21	23	20	19
Total	256	222	246	204	237

Illinois regained the roundwood-producer leadership from Indiana when the cut rebounded 19,700 cords from 1965. Even so, Indiana had a record harvest in 1966. Slightly more than two-thirds of the Illinois cut was used in the State. Ninety-seven percent of the Central States roundwood harvest was used by regional mills.

Soft hardwoods[6] accounted for 55 percent of the regional pulpwood cut, hard hardwoods 40 percent, and softwoods 5 percent. Central States loggers felled 28,000 more cords of hard hardwoods in 1966 than the previous year, but 1,600 cords less of soft hardwoods. Softwood cutting was up 6,900 cords.

Illinois and Indiana cut three-fourths of the soft-hardwood pulpwood in 1966. Compared to 1965, output changes in the four States were minor. However, soft-hardwood exports from the region dropped 4,000 cords from 1965 to a nominal 400 cords, As a result, regional consumption of local soft hardwoods was up 2,400 cords.

Hard hardwood[7] pulpwood production in 1966 spurted 42 percent ahead of 1965. Indiana loggers cut half of the regional total, but the largest gain over 1965 occurred in Illinois, where production nearly doubled. Missouri produced only 800 cords. From a year earlier, hard-hardwood pulpwood exports increased 6,400 cords in 1966, but use of local wood was up 21,000 cords.

As for softwoods, the 1966 regional pulpwood harvest was only 11,100 cords, but compared favorably with only 4,200 cords harvested the year before. Less than 200 cords left the Central States compared to 2,600 cords exported in 1965. Illinois produced nearly all of the softwood volume.

No counties cut over 10,000 cords of pulpwood in 1966 (fig. 9). High-producing counties included Gibson, Sullivan, and Ripley in Indiana; Will and Pope in Illinois; and Appanoose in Iowa. Of the 124 pulpwood-producing counties, 55 were in Illinois, 38 in Indiana, 16 in Iowa, and 15 in Missouri. As in the past, most mills satisfied their pulpwood requirements within 50 miles of the mill.

Consumption 43,000 Cords Above 1965

Of the 300,700 cords of pulpwood consumed in 1966 in the Central States, 82 percent was roundwood (table 4). The volume of hard-hardwood pulpwood processed was up 22,200 cords from 1965 and softwood use increased 9,400 cords. Soft-hardwood consumption increased only 3 percent, but was more than half of all roundwood consumed.

After declining rapidly for 3 years, roundwood use in Illinois in 1966 increased to 84,700 cords, slightly above the 1964 level. Roundwood processing in the other Central States also returned to the 1964 level.

Seventy percent of the 17,700 roundwood cords imported were soft hardwoods; the remainder were hard hardwoods.

In 1966, 9 of the 14 Central States pulpmills processed 53,400 cords of residues, 7,400 more than in 1965. More than three-fourths were hardwood residues, of which one-fourth was imported. On the other hand, two-thirds of the 12,400 cords of softwood residues processed were imported, primarily from the Lake States.

[6] *Soft hardwoods include soft-textured hardwood species such as elm, basswood, soft maple, yellow-poplar, and cottonwood.*

[7] *Hard hardwoods include hard-textured hardwoods such as oak, hard maple, beech, and hickory.*

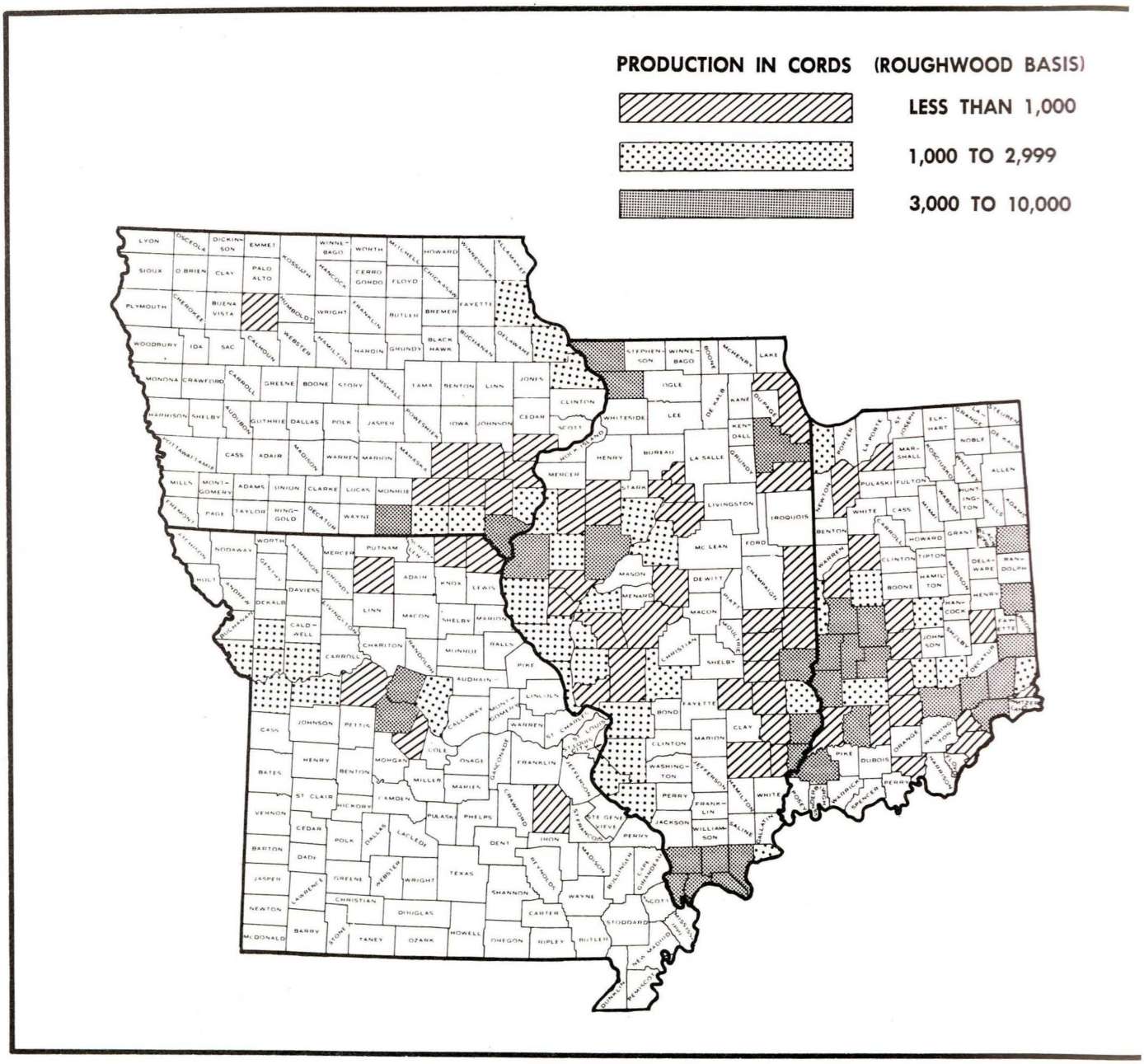


FIGURE 9. — Harvest of pulpwood bolts by counties, 1966.

TABLE 4. — *Trends in consumption of roundwood and residues as pulpwood, Central States, 1962-66*

Type of material and area	1962	1963	1964	1965	1966
Roundwood					
Illinois	106	91	82	68	84
Indiana, Iowa, Missouri	160	142	163	143	163
Total	266	233	245	211	247
Residue					
Illinois	13	17	25	22	25
Indiana, Iowa, Missouri	7	12	14	24	29
Total	20	29	39	46	54
All material	286	262	284	257	301

Seventy percent of the residue consumed was chips; the rest was wood flour, sawdust, and veneer cores.

Central States May Become Large Pulpwood Suppliers to Kentucky

Central States pulpmill capacity is about 1,500 tons per day; of this, Illinois contains over half (table 5). About 800 tons is semi-chemical and 700 tons is groundwood and other mechanical process capacity.

Except for one mill proposal for Missouri, no new capacity has been announced for the region. However, three new pulpmills proposed for Kentucky would probably receive much wood from Indiana, Illinois, and Missouri. If built, these mills will have a total daily capacity of 1,100 tons by 1970; at least 800 tons will be semi-chemical. One mill would border on Indiana, another would be about 70 miles from Indiana, and the third would be adjacent to Illinois and Missouri. Thus, the southern tiers of counties in the Central States may soon ship large volumes of pulpwood to Kentucky, and economic prospects for loggers and woods workers in these counties would be brighter.

TABLE 5 — *Active woodpulp mills in the Central States by location, type of pulp produced, and capacity, 1966*

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Illinois:						
Allied Chemical Corp	Peoria	190	--	--	190	--
Alton Box Board Co	Alton	300	--	--	--	300
Bird & Son, Inc	Chicago	40	--	--	40	--
Certain-Teed Products Corp	East St. Louis	100	--	--	100	--
Flintkote Co., The	Mt. Carmel	40	--	--	40	--
Johns-Manville Products Corp	Waukegan	65	--	--	65	--
Ruberoid Co., The	Joliet	95	--	--	95	--
Total	7 plants	830	--	--	530	300
Indiana:						
Container Corp. of America	Carthage	120	--	--	--	120
Weston Paper & Manufacturing Co	Terre Haute	150	--	--	--	150
Total	2 plants	270	--	--	--	270
Iowa:						
Allied Chemical Corp	Dubuque	90	--	--	--	90
Crandon Paper Mills, Inc	Fort Madison	135	--	--	--	135
United States Gypsum Co	Fort Dodge	2/	--	--	--	--
Total	3 plants	225	--	--	--	225
Missouri:						
Huebert Fiberboard, Inc	Booneville	60	--	--	60	--
Ruberoid Co., The	Kansas City	100	--	--	100	--
Total	2 plants	160	--	--	160	--
All States	14 plants	1,485	--	--	690	795

1/ Lockwoods Directory of the Paper and Allied Industries-1967, and 1967 Directory of the Forest Products Industry.
2/ Capacity not available.

CENTRAL STATES PULPWOOD PRODUCTION AND RECEIPTS, BY STATE, 1966

Species group and destination	Production by states[1]					Imports			Total Receipts
	Illinois	Indiana	Iowa	Missouri	Region	Lake States	Other U.S.	Total Imports	
	In standard cords unpeeled[2]								
Softwoods									
Illinois	10,442	525	-	32	10,999	-	-	-	10,999
Ind., Iowa, Mo.[3]	-	-	-	-	-	-	-	-	-
Exported[4]	-	137	-	-	137	-	-	-	-
Total	10,442	662	-	32	11,136	-	-	-	10,999
Soft hardwoods									
Illinois	36,988	5,397	-	-	42,385	577	6,352	6,929	49,314
Ind., Iowa, Mo.	16,725	39,605	13,959	18,367	88,656	3,996	1,461	5,457	94,113
Exported[4]	-	363	-	-	363	-	-	-	-
Total	53,713	45,365	13,959	18,367	131,404	4,573	7,813	12,386	143,427
Hard hardwoods									
Illinois	19,218	4,844	-	-	24,062	-	280	280	24,342
Ind., Iowa, Mo.	13,687	35,806	13,190	852	63,535	3,600	1,416	5,016	68,551
Exported[4]	-	7,414	-	-	7,414	-	-	-	-
Total	32,905	48,064	13,190	852	95,011	3,600	1,696	5,296	92,893
Total roundwood									
Illinois	66,648	10,766	-	32	77,446	577	6,632	7,209	84,655
Ind., Iowa, Mo.	30,412	75,411	27,149	19,219	152,191	7,596	2,877	10,473	162,664
Exported[4]	-	7,914	-	-	7,914	-	-	-	-
Total	97,060	94,091	27,149	19,251	237,551	8,173	9,509	17,682	247,319
Residues, softwood									
Illinois	3,904	-	-	-	3,904	6,762	1,762	8,524	12,428
Ind., Iowa, Mo.	-	-	-	-	-	-	-	-	-
Total	3,904	-	-	-	3,904	6,762	1,762	8,524	12,428
Residues, hardwood									
Illinois	10,954	-	-	-	10,954	1,418	-	1,418	12,372
Ind., Iowa, Mo.	9,006	1,159	9,175	-	19,340	4,579	4,696	9,275	28,615
Exported[4]	494	1,190	-	2,580	4,264	-	-	-	-
Total	20,454	2,349	9,175	2,580	34,558	5,997	4,696	10,693	40,987
All wood material									
Illinois	81,506	10,766	-	32	92,304	8,757	8,394	17,151	109,455
Ind., Iowa, Mo.	39,418	76,570	36,324	19,219	171,531	12,175	7,573	19,748	191,279
Exported[4]	494	9,104	-	2,580	12,178	-	-	-	-
Total	121,418	96,440	36,324	21,831	276,013	20,932	15,967	36,899	300,734

1/ Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

2/ Factors used in converting to standard green cords (128 cu.ft.) were: 4,500 pounds of soft hardwood roundwood; 5,000 pounds of hard-hardwood or coniferous roundwood; 4,100 pounds of softwood chips (green); 4,400 pounds of hardwood chips (green); 2,500 pounds of chips (all species, dry).

3/ Combined to prevent disclosure of individual mill receipts.

4/ Pulpwood shipped to mills outside the region.

Blyth, James E.

1967. Pulpwood production and consumption in the North Central region by county, 1966. U.S. Forest Serv. Resource Bull. NC-3, 27 pp., illus. N. Cent. Forest Exp. Sta., St. Paul, Minn.

Pulpwood production reached a peak of 4,280,000 cords in 1966 in the Lake States, 17 percent above the previous record cut in 1964. This paper shows pulpwood production for 1966 by county and species for each of the Lake States and compares production by species and Forest Survey District for several previous years. Also presented are data on 1966 pulpwood production and receipts by State for Illinois, Indiana, Iowa, and Missouri.

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Reports on Pulpwood Production Published by the North Central Forest Experiment Station

Reports of pulpwood production in the Lake States have been published by the Station since 1946. One group of short Notes gives annual data by State and species. Another group of longer reports begun in 1959 gives more detailed information by County; in 1965, we began including data for four Central States in this report.

The longer reports are:

Pulpwood Production in Lake States Counties, by Arthur G. Horn.

1959 data: Station Paper 85, 13 p.

1960 data: Station Paper 94, 28 p.

1961 data: Station Paper 106, 18 p.

1962 data: Research Paper LS-5, 16 p.

1963 data: Resource Bulletin LS-1, 17 p.

1964 data: Resource Bulletin LS-2, 19 p.

Pulpwood Production and Consumption in the North Central Region by County, 1965; 24 p., by James E. Blyth, Resource Bulletin NC-2.

The serial numbers of the brief Notes for the past 10 years are:

1957:	Tech. Note 529	1962:	Research Note LS-23
1958:	Tech. Note 558	1963:	Research Note LS-48
1959:	Tech. Note 588	1964:	Research Note LS-65
1960:	Tech. Note 606	1965:	Research Note NC-3
1961:	Tech. Note 624	1966:	Research Note NC-31

THE FOREST SERVICE CREED

The Forest Service of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.